



## Effect of the Value of Human assets and its Component variables on Firm value A study on listed Companies in Bombay Stock Exchange

Khodabakhshi Parijan Khadijeh<sup>1</sup> and Sumangala C<sup>2</sup>

<sup>1</sup>B.N. Bahadur Institute of Management Sciences, Manasagangotri, University of Mysore, Mysore, Karnataka, INDIA

<sup>2</sup>Department of Business Management, Maharaja's College, University of Mysore, Mysore, Karnataka, INDIA

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### Abstract

*The main purpose of the study is to find out the relationship between human asset value and its attribute variables on firm value. The data used in the study has been collected from the annual reports of ten selected companies listed in BSE-500 Index for the years 2005-06 to 2011-12. To find out the interrelationship between variables, the bivariate correlation analysis and linear regression analysis between firm value and HRV and its component variables has been undertaken. This study indicates that the human asset has an impact on the firm value of an organization. The componentized variables of HRV (i.e. total number of employees and return on HRV) yield a significantly high coefficient of determination, which could be used to predict the impact on firm value in selected companies. Out of the two component variables of HRV, total number of employees is positively related with firm value whereas the return on HRV is negatively related with firm value. The fact that there is any relationship indicates that investors may be benefiting from the disclosure of components and are considering the human asset as a decision –making factor.*

**Keywords:** Human resource value (HRV), human resource accounting (HRA), financial variables, predictor variables.

### Introduction

One of the most debated dilemmas in the present accounting world is the Human Resource Accounting (HRA). Many theories and methods have been counseled for valuing human resource. There is an increasing recognition of the fact that the core economic resources of the contemporary era are human resources rather than physical resources such as plants, equipments and inventories, etc. The main key to every organization's success in the market is its stocks of human capital<sup>1</sup>. Accountants have recognized the value of human assets for at least 70 years. Research into true HRA began in the 1960s by Rensis Likert<sup>2</sup>. Likert defends long-term planning by strong pressure on human resources' qualitative variables, resulting in greater benefits in the long run. American accounting association (AAA) defines Human Resource Accounting: as "the process of identifying and measuring data about human resources and communicating this information to the interested parties"<sup>3</sup>. Human Resource has long been recognized as a most important asset and value creator to organizations. The basic objective underlying Human Resource Accounting is to facilitate the effective and efficient management of human Assets<sup>4</sup>. In mission statements, annual reports and annual general meetings, companies state that "our greatest assets are our people"<sup>5</sup>. Culppepper<sup>6</sup> conducted a case study in India, and examined the effect of disclosure of human assets on 3 publicly traded companies including BHEL, INFOSYS, and SATYAM. The author evaluated the correlation between disclosure of the value of human assets and firm value from 1998 to 2004. The result of this study shown that, as more money is invested in the

human asset, the value of the organization's stock appears to be worth more to the investors in BHEL. And analysis of INFOSYS indicates that an increase in human asset value results in a decrease the firm value. Analysis of SATYAM shows that the correlation of human assets value to firm value is negative. This analysis indicates that the more money invested in HA the lower the value of the firm's stock in SATYAM

Verma and Dewe<sup>7</sup>, Sharma and Shukla<sup>8</sup> and Joshi and Mahei<sup>9</sup> conducted case studies on the Human Resource Accounting practices of some selected companies in India. Verma and Dewe in their research revealed perceptions in the area of valuing human assets. This paper focused on the importance of human asset value, barriers to measurement, current measurement practices and the progress expected in this field. Majority of respondents regarded the measurement of human resources as important to their company, little or moderate progress was expected in measurement practices over the next few years. Sharma and Shukla in their article analyzed the application of human asset accounting in heavy industries covering the period from 2001-2010 with the case study of the Hindustan Copper Limited (HCL). According to the conclusion of this study the concept of human asset accounting is yet gaining momentum in India. For the betterment of the organizations, it is necessary to evaluate the worth of human assets in a systematic manner and record the information in the financial statement of the organization to communicate their worth time to time to the users of the financial statement. Joshi and Mahei<sup>9</sup> conducted a comparative study of the human resource accounting practices within Indian companies like, CCI, HPCL, INFOSYS, ROLTA

India Limited. In this study the variables that are important for the purpose of human resource accounting are identified and by analyzing, the annual reports of these selected companies scores are assigned to the organizations and mean scores for these organizations were calculated. Ranks to the organizations are also given based upon the extent of the HRA information reported in their annual reports.

Singh<sup>10</sup>, Skoog<sup>11</sup>, Al Mamun<sup>12</sup> and Beattie and Smith<sup>13</sup> in their studies examined impact of corporate attributes and human capital on firm value within some selected companies in different countries. According to the Singh<sup>10</sup> study finding firms maximize performance by selecting employees with particular knowledge, skill and abilities. In index of measures of HR practices explained a variation in all the measures of objective firm performance no higher than the variation accounted for by individual HR practices. Skoog found a positive correlation between the reported HC and profitability in the long run. According to Al Mamun<sup>12</sup> study size of the company, category of the company and profitability as corporate attributes have related with Human Resource Accounting Disclosure. And according to the finding of Vivien Beattie, and Sarah Jane Smith study employee skills and education, employee commitment, positive employee attitudes and behavior, and employee motivation are considered to contribute to value creation the most. Information on employee turnover, employee training and development, and workplace safety is frequently collated. There also appears to be attempts to capture information on aspects such as employee satisfaction, motivation and commitment. Marked differences exist between the extent to which information is internally collated and externally disclosed.

Veltri and Silvestri<sup>14</sup> have been conducted a study on effect of human capital on firm value within Italian Companies. The result revealed from this study is the existence of a positive relationship between the IC terms variables and the market price, meaning that investors price accounting data and IC information in Italian firm's evaluating process.

**Hypotheses:** "There is a significant relationship between Value of Human Assets and firm value". "There is a significant relationship between Total Number of Employee and firm value". "There is a significant relationship between Return on HRV and firm value".

## Methodology

The descriptive research method was followed in the present research to describe and analyze the data concerning human assets and firm value. A purposive sampling technique is used for the selection of sample units. Samples are taken from listed companies in India (BSE-500 Index). The sample companies which have chosen by researcher in this study are 10 listed companies in India. The researcher has found out ONGC, NTPC, BHEL, IOC, SAIL, HPCL, BPCL, HCL, INFOSYS Ltd, and ROLTA INDIA Ltd are TEN listed organizations on the

BSE-500 Index which are practicing HRA. The study takes into consider 7 financial reporting years; 2005-2006 to 2011-12. These organizations have used Human Resource Accounting consecutively for 7 years and have used one of the theoretical methods to quantify the human assets in their organizations.

The quantification must have been disclosed in their financial reports for the 7 consecutive years. The aim of the present study is directed towards identifying the significance relationship between all such variables with the firm value. The data that were extracted from the annual reports was analyzed using the SPSS software. The dependent variable is the factor that is to be determined by the changes in the independent variables. The dependent variable, firm value, is the market value of the organization's stock at the end of each of the respective sample years 2006-2012. All data has been analyzed using the SPSS 20.0 software package by the help of Regression - linear and Pearson's Product Moment. Correlation.

## Results and Discussion

Tables-1 to 5 shows the Pearson product moment-correlation and Linear Regression analyses for testing of hypotheses of the study.

**Hypothesis One:** "There is a significant relationship between the disclosure of the value of Human Assets and Firm Value".

Assets represent the resources that are acquired by an organization to use in the operations of the business. Firm Value represents the investors' perception of the benefit that can be received from ownership of a share of stock. The Pearson's product-moment correlation coefficients for the variables are shown in table-1. The results of the analysis in table 1 indicate that the correlation between HRV and Firm Value has turned out to be highly significant as shown in the table below. Firm Value is positively and significantly related to HRV. With an increase in the HRV, Firm Value would increase and Vice-Versa. This analysis indicates that as more money is invested in the human asset, the value of the organizations' stock appear to be worth more to the investors. The Relationship between Human asset value and Firm Value of correlation coefficient ( $r$ ) = 0.835\*\* (table-1) is high, implying that a strong relationship exist between Human asset value and Firm Value. The significant/probability value (PV) = 0.000 < 0.01 level of significance.

Furthermore the researcher examines the impact of Human Resource Value on Firm Value by assuming the possibility of existence of straight-line linear relationship between Firm Value and Human Resource Value. This analysis enables the researcher to find out the answer of the questions, how Firm Value responds to the movement in an individual variable. The regression result of Human Resource Value is statistically significant. The value of regression coefficients with respect to HRV [0.020] is positive. The increase in the value of HRV

would enhance the Firm Value at the selected companies. It implies that a one unit change in HRV would lead to 0.020 unit change in Firm Value in selected companies, assuming other factors to be constant. Adjusted  $R^2$  analysis of the Human Resource Value versus Firm Value indicates that the correlation determination is 69.2% (table-1). This indicates that 30.8% of Firm Value is a result of other factors when the Human Resource Value is the only independent variable under consideration.

**Hypothesis two:** “There is a significant relationship between Total Number of Employees and Firm Value”. Hypothesis three: “There is a significant relationship between Return on HRV and Firm Value”.

The components of human asset that was disclosed in the annual report of these 10 listed companies in BSE were the Number of Employee and Return on HRV. The analysis indicates that the components (i.e. Number of Employee, Return on HRV) both have high relationships to Firm Value. Table-2, 3 show that there is a high positive correlation between the number of employee and Firm Value, and there is a high negative correlation between the Return on HRV and Firm Value. The correlation coefficient indicates the type of relationship among the variables being analyzed. This analysis indicates that the higher the Number of Employees an organization employs the higher the value of the firm's stock and an increase in Return on HRV results in a decrease the Firm Value and Vice-Versa. The Relationship between Number of Employees and Firm Value of correlation coefficient ( $r$ ) = 0.483\*\* (table-2) is moderate, implying that a moderate positive relationship exist between Total Number of Employees and Firm Value. The significant/probability value (PV) = 0.000 < 0.01 level of significance.

In addition, the Relationship between Return on HRV and Firm Value of correlation coefficient ( $r$ ) = -0.336\*\* (table-3) is moderate, implying that a moderate negative relationship exist between Return on HRV and Firm Value. The significant/probability value (PV) = 0.004 < 0.01 level of significance.

The researcher examines the impact of component variables of HRV on Firm Value by assuming the possibility of existence of straight-line linear relationship between Firm Value and component variables of HRV. This analysis enables the researcher to find out the answer of the questions, how Firm Value responds to the movement in an individual variable. The regression results with respect to Total Number of Employees and Return on HRV are statistically significant. The values of regression coefficients with respect to total number of employee [0.008] is positive but value of regression coefficients of Return on HRV [-12.213] is negative. The increase in the values of Total Number of Employees would enhance the Firm Value at the selected companies and the increase in the value of Return on HRV would decrease the Firm Value at the selected companies. It implies that a one unit change in Total Number of Employees and Return on HRV would lead to 0.008, and - 12.213 unit change in Firm Value respectively in selected companies, assuming other factors to be constant. Adjusted  $R^2$  analysis of the Total Number of Employees versus Firm Value indicates that the correlation determination is 22.2 % (table-2). This indicates that 77.8% of Firm Value is a result of other factors when the Total Number of Employees is the only independent variable under consideration. And Adjusted  $R^2$  analysis of the Return on HRV versus Firm Value indicates that the correlation determination is 10 % (table-3). This indicates that 90% of Firm Value is a result of other factors when the Return on HRV is the only independent variable under consideration.

**Table-1**  
**Correlation and Regression Coefficients**

Variable 1	Variable 2	Pearson Correlation	Constant	Beta	t-value	Sig.	R Square	Adjusted R Square	F
HRV	Firm Value	0.835**	-14.980	0.020	12.501**	0.000	0.697	0.692	156.279**

\*\*Correlation is significant at the 0.01 level; df=68, Dependent variable: firm value, Component variables of HRV:

**Table-2**  
**Correlation and Regression Coefficients**

Variable 1	Variable 2	Pearson Correlation	Constant	Beta	t-value	Sig.	R Square	Adjusted R Square	F
Total Number of Employee	Firm Value	0.483**	152.646	0.008	4.546**	0.000	0.233	0.222	20.667**

\*\*, Correlation and regression are significant at the 0.01 level; df=68, Dependent variable: firm value

**Table-3**  
**Correlation and Regression Coefficients**

Variable 1	Variable 2	Pearson Correlation	Constant	Beta	t-value	Sig.	R Square	Adjusted R Square	F
Return on HRV	Firm Value	-0.336**	764.978	-12.213	-2.943**	0.004	0.113	0.100	8.662**

\*\* . Correlation and regression are significant at the 0.01 level; df=68, Dependent variable: firm value

**Discussion: Main Findings:** Major findings are discussed with reference to the objective presented in the study which is as follows:

A high and positive relationship between the Human Asset Value and firm value is found (significant at 1%). A high and positive relationship between total number of employees and firm value is found (significant at 1%). Also a high and negative relationship between return on HRV and firm value is found (significant at 1%).

**Hypotheses Testing: Hypothesis One:** There is a significant relationship between the disclosure of the value of Human Assets and Firm Value.

The results from Pearson Product-Moment correlation and Univariate regression analysis reveal that there exists positive and significant relationship between value of human assets and firm value. The human asset value is a significant variable to consider when investing in the stock of the organizations. The reasons might be that investors perceive the human assets as a viable resource in the selected organizations. The early and continual investment in human capital argued by Becker<sup>15</sup> is couched in the idea that on a macro level, a country will be more sustained economically if individuals continue to improve their value to society. Becker's theory is supported by this study as it indicates that on a micro level, firms' value increase as the investment in human asset increases. Also, this study is supported by Culpepper<sup>16</sup> study where a significant and positive relationship between human resource value and firm value was found. This study is supported by Veltri and Silvestri<sup>17</sup> where a positive relationship between the IC terms variables and the market price was found. Thus, H<sub>1</sub> has been accepted at 1% level of significance.

Hypothesis two: "There is a significant relationship between Total Number of Employees and Firm Value". 3 Hypothesis three: "There is a significant relationship between Return on HRV and Firm Value".

The Pearson Product-Moment correlation and Univariate regression analysis indicates positive and significant association between total number of employees as a human asset component and firm value as well as negative and significant relationship between Return on Human Resource Value (HRV) as another human asset component and firm value. The positive

relationship of total number of employees with firm value reveals that the higher the Number of Employees an organization employs the higher the value of the firm's stock and the negative association between return on HRV and firm value reveals that an increase in Return on HRV results in a decrease the Firm Value and Vice-Versa. So, Hermanson<sup>18</sup> theorized that the future earnings of an organization could be discounted to the present to determine the value of human assets. Hermanson's theory is supported by this study, as Tables 2 and 3 indicate that there is a high and significant correlation and coefficient of determination between the components of the human asset and firm value. Hence alternate hypotheses (H<sub>2</sub> and H<sub>3</sub>) are accepted at 1% levels of significant for the purpose of current study.

## Conclusion

To improve the level of a workforce, more attention to the most valuable asset of an organization, the human asset, may be needed. Although this study is limited to ten organizations, two in the technology industry and eight in the heavy equipment industry, this study indicates that the human asset has an impact on the firm value of an organization. The researcher accepts all the alternative hypotheses. The simple correlation analysis as examined in the study reveals that the significant relationship between human value and its component variables on firm value. Firm value is negatively related with the return on HRV as a component variable of HRV. Therefore, this study indicates that the firm value is positively and negatively affected by the human asset value components disclosed in the annual reports. The fact that there is any relationship indicates that investors may be benefiting from the disclosure of components and are considering the human asset as a decision –making factor.

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